
Sudan solar container communication station uninterrupted power supply in the shop

Can solar energy be used in Sudan?

Research and projects on solar energy in Sudan have primarily concentrated on solar PV systems, with relatively limited focus on solar thermal energy. Nevertheless, there are some studies that have explored power generation using CSP technologies.

What is the energy supply in Sudan?

The energy supply in Sudan is primarily derived from crude oil, hydroelectricity, biomass, and renewable energy sources such as wind, solar, and geothermal energy. As illustrated in Figure 2a, biomass is the largest contributor, accounting for 52% of Sudan's total energy consumption.

Which CSP technologies are most suitable for Sudan's environment?

The CSP site assessment identified six zones for hosting CSP technologies in Sudan. Relocating GEMASOLAR and ANDASOL-1 in Sudan showed better outputs than in Spain. The solar power tower system is the most suitable for Sudan's environment. The LCOE at zone1 for the 50 MWe solar tower plant is 0.086 USD/kWh.

Are solar power towers and parabolic troughs "hypothetically relocated" in Sudan?

The study used techno-economic analysis for two of the most mature CSP technologies - solar power tower (SPT) and parabolic trough (PT) technology - to produce electricity in Sudan. Two commercial CSP plants, namely GEMASOLAR and ANDASOL-1, have been "hypothetically" relocated in six Sudanese zones using the system advisor model (SAM).

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These systems can efficiently support both on-grid and off-grid applications, ensuring uninterrupted power supply while optimizing resource use [20, ...

Future Implications: Integrating solar and storage solutions could stabilize South Sudan's energy infrastructure, creating a model for renewable energy adoption in other energy-deprived ...

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Sudan is a sunbelt country that has abundant solar resources and large wasteland areas, especially in the

northern and western ...

These systems can efficiently support both on-grid and off-grid applications, ensuring uninterrupted power supply while optimizing resource use [20, 21]. By leveraging hybrid ...

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